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Clean version of the amended claims

C1
1. (Twice amended) A device for manufacturing items made of plastic material, with molding units arranged on a structure of carousel which rotates about a first vertical axis, the device including an upper male mold part and a lower female mold part which are aligned along a second vertical axis, parallel to said first vertical axis of the carousel, said male mold part comprising: a cylindrical jacket which is rigidly coupled to the structure of the rotating carousel coaxial to a sliding axis of the female mold part; a sleeve which is guided on said jacket; and a forming punch which is guided in said jacket and comprises a tubular stem, said tubular stem having a lower portion forming a chamber, said lower portion being constituted by a plate fixed to said stem and having an outer surface which is shaped so as to produce internal molding of a molded item, said plate including ports provided at said outer surface, said ports being supplied with compressed air; a tube accommodated inside said stem, said tube forming, together with said stem, a cylindrical interspace which is connected to said chamber; a slender tube arranged internally along said tube and connected hermetically to said plate in communication with said ports, said slender tube forming, together with said tube, a tubular channel, said tubular channel being connected to said chamber; and coolant fluid delivery and return couplings, said cylindrical interspace and said tubular channel being connected to said coolant fluid delivery and return couplings, and said slender tube being supplied with, and further conveying compressed air through said ports between said outer surface and the molded item, so as to cause the separation of said item from said lower portion of said tubular stem.

C2
2. (Amended) The device of claim 1, wherein said plate is centered at a flared region of said stem and is provided with a tubular tang which is screwed into said stem so as to form said chamber, and wherein lower ends of said tube and of said slender tube are inserted hermetically in said tang so as to close said cylindrical interspace and said tubular channel, said cylindrical interspace and said tubular channel being connected to said chamber through openings provided at said tang.

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6. (Amended) A device for manufacturing caps of plastic material for closing containers, with molding units arranged on a structure of carousel which rotates about a first vertical axis, the device including an upper male mold part and a lower female mold part which are aligned along a second vertical axis, parallel to said first vertical axis of the carousel, said male mold part comprising: a cylindrical jacket which is rigidly coupled to the structure of the rotating carousel coaxial to a sliding axis of the female mold part; a sleeve which is guided on said jacket; and a forming punch which is guided in said jacket and comprises a tubular stem, said tubular stem having a lower portion forming a chamber, said lower portion being constituted by a plate fixed to said stem and having an outer surface which is shaped so as to produce internal molding of a molded item, said plate including ports provided at said outer surface, said ports being supplied with compressed air; a tube accommodated inside said stem, said tube forming, together with said stem, a cylindrical interspace which is connected to said chamber; a slender tube arranged internally along said tube and connected hermetically to said plate in communication with said ports, said slender tube forming, together with said tube, a tubular channel, said tubular channel being connected to said chamber; and coolant fluid delivery and return couplings, said cylindrical interspace and said tubular channel being connected to said coolant fluid delivery and return couplings, and said slender tube being supplied with, and further conveying compressed air through said ports between said outer surface and the molded item, so as to cause the separation of said item from said lower portion of said tubular stem.

7. (Amended) The device of claim 6 wherein said plate is centered at a flared region of said stem and is provided with a tubular tang which is screwed into said stem so as to form said chamber, and wherein lower ends of said tube and of said slender tube are inserted hermetically in said tang so as to close said cylindrical interspace and said tubular channel, said cylindrical interspace and said tubular channel being connected to said chamber through openings provided at said tang.

C4

11. (Amended) A device for manufacturing items made of plastic material, with molding units arranged on a structure of carousel which rotates about a first vertical axis, the device including an upper male mold part and a lower female mold part which are aligned

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C4
along a second vertical axis, parallel to said first vertical axis of the carousel, said male mold part comprising: a cylindrical jacket which is rigidly coupled to the structure of the rotating carousel coaxial to a sliding axis of the female mold part; a sleeve which is guided on said jacket; and a forming punch which is guided in said jacket and comprises a tubular stem, said tubular stem having a lower portion forming a chamber, said lower portion further including an outer surface which is shaped so as to produce internal molding of a molded item, and ports provided at said outer surface, said ports being supplied with compressed air; a tube accommodated inside said stem, said tube forming, together with said stem, a cylindrical interspace which is connected to said chamber; a slender tube arranged internally along said tube and forming, together with said tube, a tubular channel, said tubular channel being connected to said chamber; and coolant fluid delivery and return couplings, said cylindrical interspace and said tubular channel being connected to said coolant fluid delivery and return couplings, and said slender tube being supplied with, and further conveying compressed air through said ports between said outer surface and the molded item, so as to cause the separation of said item from said lower portion of said tubular stem, wherein said lower portion is constituted by a plate which is centered at a flared region of said stem, said plate being provided with a tubular tang which is screwed into said stem so as to form said chamber, and wherein lower ends of said tube and of said slender tube are inserted hermetically in said tang so as to close said cylindrical interspace and said tubular channel, said cylindrical interspace and said tubular channel being connected to said chamber through openings provided at said tang, a body coupled to an upper end of said stem, upper ends of said tube and of said slender tube being inserted hermetically in said body; and holes being formed in said body in order to connect said cylindrical interspace and said tubular channel to said coolant fluid delivery and return couplings and to allow supplying of compressed air to said slender tube, an element which is fixed to a top part of said stem, said element being provided with couplings for connection to said holes, and accommodating said body which has a cylindrical form, comprising elastic means, which are interposed between said element and the structure of the carousel for returning said stem into a position in which said punch rests against a shoulder of said jacket.

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C4

12. (Amended) A device for manufacturing caps of plastic material for closing materials with molding units arranged on a structure of carousel which rotates about a first vertical axis, the device including an upper male mold part and a lower female mold part which are aligned along a second vertical axis, parallel to said first vertical axis of the carousel, said male mold part comprising: a cylindrical jacket which is rigidly coupled to the structure of the rotating carousel coaxial to a sliding axis of the female mold part; a sleeve which is guided on said jacket; and a forming punch which is guided in said jacket and comprises a tubular stem, said tubular stem having a lower portion forming a chamber, said lower portion further including an outer surface which is shaped so as to produce internal molding of a molded item, and ports provided at said outer surface, said ports being supplied with compressed air; a tube accommodated inside said stem, said tube forming, together with said stem, a cylindrical interspace which is connected to said chamber; a slender tube arranged internally along said tube and forming, together with said tube, a tubular channel, said tubular channel being connected to said chamber; and coolant fluid delivery and return couplings, said cylindrical interspace and said tubular channel being connected to said coolant fluid delivery and return couplings, and said slender tube being supplied with, and further conveying compressed air through said ports between said outer surface and the molded item, so as to cause the separation of said item from said lower portion of said tubular stem, wherein said lower portion is constituted by a plate which is centered at a flared region of said stem, said plate being provided with a tubular tang which is screwed into said stem so as to form said chamber, and wherein lower ends of said tube and of said slender tube are inserted hermetically in said tang so as to close said cylindrical interspace and said tubular channel, said cylindrical interspace and said tubular channel being connected to said chamber through openings provided at said tang, a body coupled to an upper end of said stem, upper ends of said tube and of said slender tube being inserted hermetically in said body; and holes being formed in said body in order to connect said cylindrical interspace and said tubular channel to said coolant fluid delivery and return couplings and to allow supplying of compressed air to said slender tube, an element which is fixed to a top part of said stem, said element being provided with couplings for connection to said holes, and accommodating said body which has a cylindrical form, elastic means, which are interposed

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C4 between said element and the structure of the carousel for returning said stem into a position in which said punch rests against a shoulder of said jacket.

C5 14. (Amended)) A device according to claim [13] 16 wherein said forming punch comprises a bell-shaped portion, [a] said plate being centered to said bell-shaped portion and having a [tubular] tubular tang centrally projecting therefrom [from said plate] and coupled to said [tubular] tubular stem so as to define said chamber, a plurality of radial holes radially formed in said plate and opened onto the outside of said punch, a bush hermetically inserted in said tang and connected a lower end of said slender tube to said radial holes, a recess formed in said body, a cylinder [accomodated] accommodated in said recess coaxially to said slender tube and provided with respective holes communicating with said compressed air supply, said upper end of said slender tube being hermetically inserted in said cylinder and connected to said compressed air supply through said respective holes.

15. (Amended) The device according to claim [13] 16, further comprising elastic means which are interposed between said cylindrical element and a structure of said carousel and are suitable to return said tubular stem into a position in which said forming punch rests against a shoulder of said jacket.

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Thereafter, please add the following new claim:

--16. A device for manufacturing plastic caps for closing containers, by means of molding units arranged on a carousel having a structure rotating about a vertical axis and comprising an upper male mold part and a lower female mold part which are aligned along a second vertical axis which is parallel to the rotation axis of the carousel, said upper male mold part comprising: a cylindrical jacket rigidly coupled to the structure of the rotating carousel, coaxial to the sliding axis of said lower female mold part; a sleeve which is guided on said jacket; a forming punch with an outer forming surface, said forming punch being guided in said jacket and comprising a tubular stem having an upper portion and a lower portion, said lower portion enclosing a chamber and having an outer surface formed by a plate fixed to said stem, said plate being shaped so as to produce the internal molding of said item and being provided with ports opening at said lower surface and connected to a compressed air supply, said tubular stem internally accommodating a tube which forms, together with said tubular stem, a cylindrical interspace which is connected to said chamber; a cylindrical element fixed to said upper portion of said tubular stem and having a seat coaxial to said tubular stem; a body accommodated in said seat and coupled to said upper portion of said tubular stem; a slender tube arranged internally along said tube and hermetically coupled to said plate in fluid communication with said ports and forming, together with said tube, a tubular channel which is connected to said chamber, said slender tube and said tube each having an upper end hermetically inserted in said body; holes formed in said body and in said cylindrical element for connecting said cylindrical interspace and said tubular channel to a delivery and a return of a coolant fluid and for connecting said slender tube to said compressed air supply so as to convey compressed air through said ports between the outer forming surface of said forming punch and the manufactured item, so as to cause the separation of said item from said portion.

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Remarks

Reconsideration of the application as hereby amended is respectfully solicited.

The pending main claims have been amended to set forth that the lower portion of the stem is constituted by a plate fixed to the stem, in which ports are provided connected to, and providing compressed air.

The slender tube has been defined as being hermetically connected to the plate and in fluid communication with the ports.

It is submitted that Alieri teaches a lower plate 3, which is not holed and no provision for compressed air is disclosed.

Lachner et al teaches a blow molding arrangement with a blowing tube connected to a plate 6a covered by a further movable mandrel tip 6, with radial holes 13 opened and closed following to relative axial movements of the blowing tube with the plate 6a with respect to the tip 6. The holes 13 are opened in the blow molding step to mold the product and closed and connected to a vacuum source in the cooling step "to ensure that no air penetrates between the interior of the pre-form and the exterior of the mandrel...so that any tendency to separate...is prevented" (column 2, lines 32-35).

Moreover Lachner et al teaches that "the inside walls of the injection mold 3 and 4...are preferably slightly tapered to facilitate withdrawal..of the pre-form...".

Thus, Alieri, which discloses pressure molding of caps followed by mechanical cap removal in a separate step, and Lachner et al, which discloses a pre-form blow molding with vacuum provision in the cooling step and mechanical removal of the pre-form, clearly teach away from the combinations of the claims 1-12 and 14-17.

Accordingly, it is now believed that the application is an allowable condition and allowance thereof is respectfully solicited.

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While it is believed that the amended claims properly and clearly define the present invention, applicant would be open to any suggestion or amendment the Examiner may have or propose concerning different claim phraseology which, in the Examiner's opinion, more accurately defines the present invention.

Respectfully submitted,



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